nuaire

sunwarm®
and
sunwarm air®

Application and Installation Guide (for Solar Air Collectors)

Manual Number 671378 April 2008

Application and Installation Guide **for Solar Air Collectors**

for **sunwarm**® system and **sunwarm air**® system

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I.O Introduction

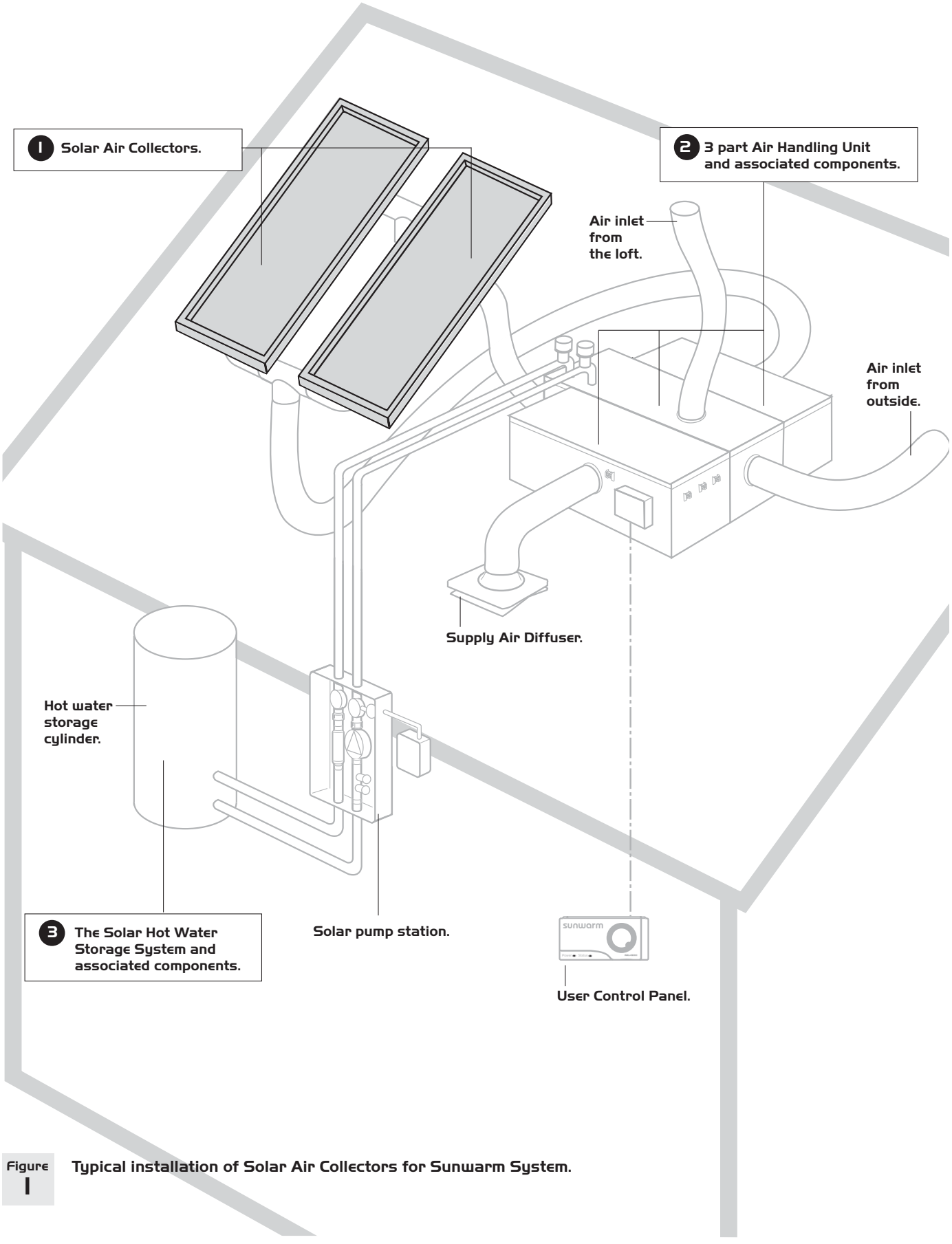


Figure 1 Typical installation of Solar Air Collectors for Sunwarm System.

I.O Introduction

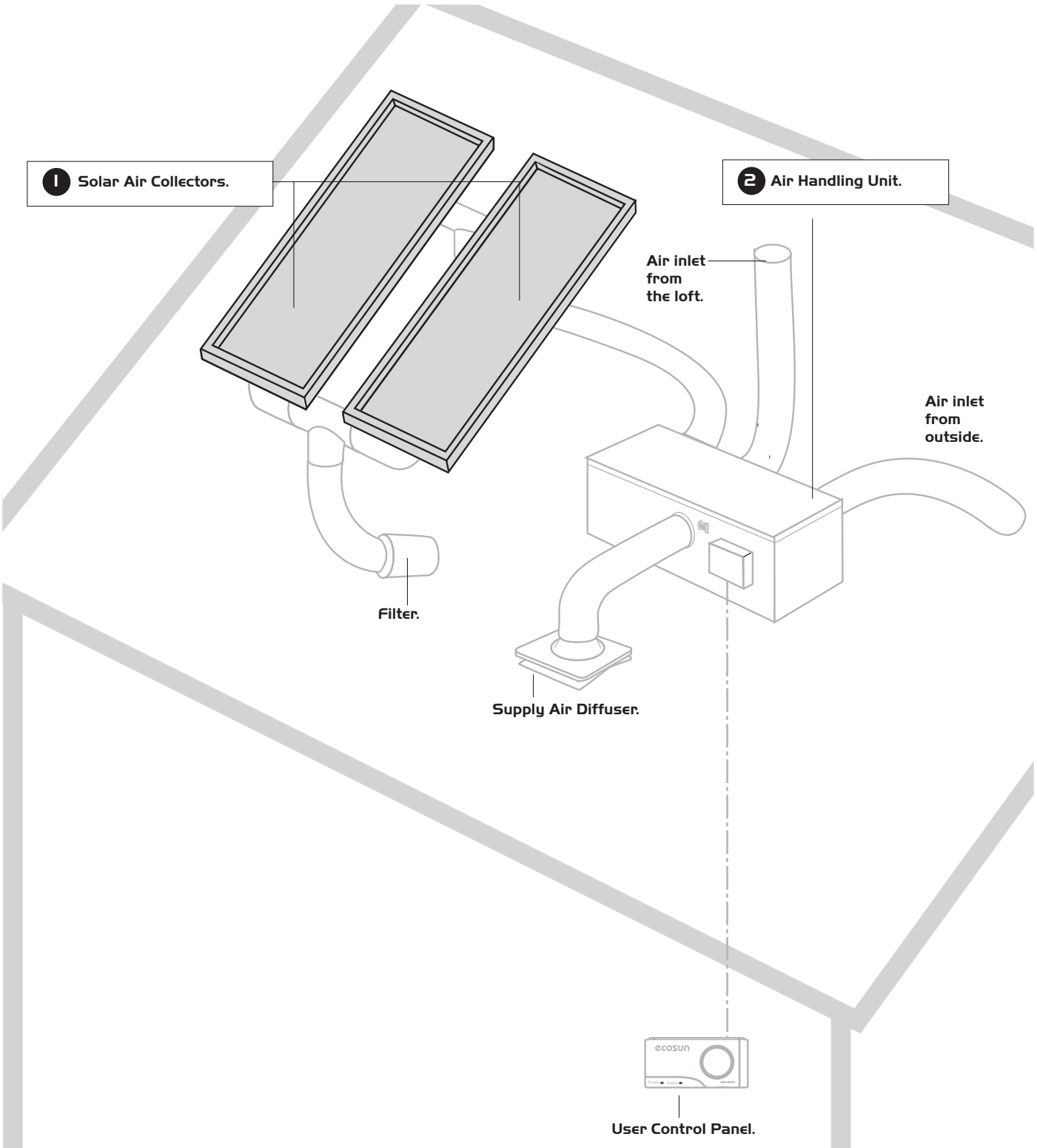


Figure Ia **Typical installation of Solar Air Collectors for Sunwarm Air System.**

1.0 Introduction

1.1 Important Notes to Designers and Installers

The successful operation of the system depends entirely upon it being applied, installed and maintained strictly in accordance with these instructions.
Please read through this guide in its entirety before commencing works and then follow the instructions step by step to ensure satisfactory completion.

The installation of the Solar Air Collectors requires work to be carried out at high level. This requires the employment of suitably qualified tradesmen.
Before commencing work the installer must ensure that he/she is familiar with all national and local requirements and that the installation team is able to comply with them.

Solar Air Collectors can be installed in a home with a "cold roof" or "warm roof". These instructions are limited to installation in a home with a "cold roof". "Warm roofs" vary considerably and advice should be sought from Nuaire or your authorised installer on an individual basis.
All installation materials not supplied as standard with the system e.g. ducting, pipework and fittings are normally supplied by the installer.

Please note Nuaire cannot accept resposibility for unsatisfactory performance of equipment it does not supply.

1.2 Warranty

The 10 year warranty starts from the day of delivery and includes parts and labour for the first 2 years. The remaining 8 years covers parts only. This warranty is conditional on planned maintenance being undertaken.

1.3 Installation Requirements

The Solar Air Collectors should ideally be positioned on a South, South West or South East facing roof area (in order of preference). The roof structure must be fit to accommodate the Solar Air Collectors mass (2 x 50 kg).

To maximise the solar energy collected, there should be no shadows cast across the panels from adjacent buildings, trees or the roof structure itself.

1.4 General Installation

The process to be followed will generally be as shown below :-

- **Install Solar Air Collectors.**
- **Install 3 part Air Handling Unit.**
- **Install all ductwork and temperature sensors.**
- **Install hot water cylinder and associated sunwarm components.**
- **Complete all electrical installation work.**
- **Test and commission.**

On new buildings, the installation may be phased in line with the building construction.

1.5 Before Beginning Installation

1) Make sure you have received all items listed under the packing list.

2) Make sure you have all the necessary health and safety equipment needed.

Note: This manual covers installation of Solar Air Collectors and associated components only.
For complete system installation instructions refer to manual numbers 671275 and 671379 which can be downloaded from the Sunwarm Website.
www.sunwarm.com

1.6 Tilt Angle

We recommend a minimum tilt angle of 12.5° in order to ensure good run off of rain water from the surface of the collectors.

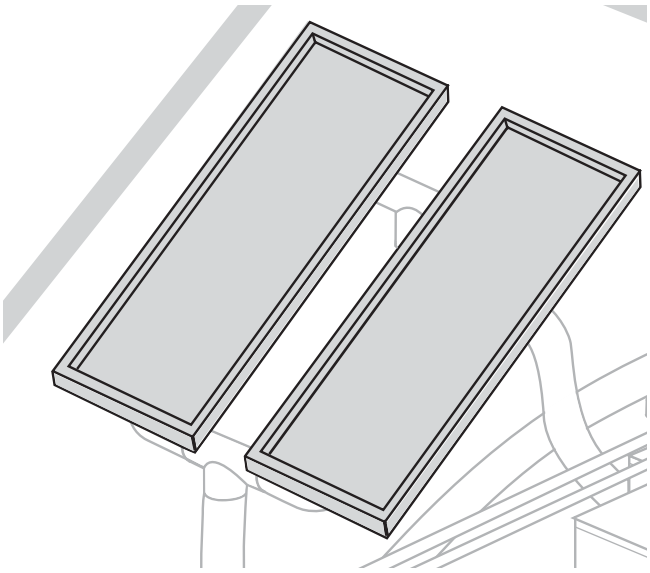
1.7 Maximum Operating Pressure

The Solar Air Collectors utilize an automatic temperature control device as well as other controls to distribute the air throughout the system. In the unlikely event of all measures failing, the maximum internal air pressure will not exceed 0.1bar.

1.8 Lightening Protection

There are no specific requirements for installation of Solar Air Collectors; however, please consult any local regulatory or precautionary requirements if you live in an area prone to lightening strikes for protection of your building.

2.0 Installation of the Solar Air Collectors



2.1 General Information

The Solar Air Collectors are delivered to site in a crate suitable for forklift handling.

There are normally two collectors per dwelling. (Packaged individually - weight 50kg).
Each Solar Air Collector consists of a sealed unit, which contains the solar absorber and is heavily insulated and covered on the top face with a polycarbonate sheet.

WARNING – take all precautions necessary to protect the polycarbonate whilst handling the collectors.

The installer should follow all standard safety procedures whilst working. We recommend use of appropriate personal protective equipment during installation.

2.2 Packing List Checklist

The delivery crate contains:	Part No.	Quantity
Solar air collectors:		2
Flat Skirt or	Sunwarm-C2/S/slate	
10mm Upstand or	Sunwarm-C2/10	
25mm Upstand	Sunwarm-C2/25	
Templates	Sunwarm-CTPL	1
M8 Stud Bar (pack of 4)	001297	2
M8 Shakeproof Washer	110045	24
M8 Nut	590043	24
M8 Washer	610027	24
No.8 x 3/8inch Self tapping screw	180213	16
Clamp bracket	51932	4
Installation Manual	671274	1
Spigots	011790	4
Sensor	240329	1

Any missing parts contact: 0870 5002 555 immediately.

2.3 General Instructions

In the northern hemisphere, the collectors are normally installed on a roof facing South/ South West/South East. Orientation towards the North will severely compromise the performance of the system. If in doubt, **do not fit** until you have checked with the system designer or Nuaire.
The location of the collectors on the roof should minimise any possibility of overshadowing by roof structures, trees or adjacent buildings.
The panels must be positioned in portrait mode, down the roof, with the shortest side horizontal with the ridge and/or the eaves.
Generally, the higher up the roof slope the panels are, the better is the exposure to solar energy.
Ensure that the collectors are positioned at least one metre from the base of the roof slope to allow for ductwork connections.

2.4 Handling

Each collector weighs approximately 50kg.
Appropriate handling systems should be used on site.
Avoid placing the panels on any uneven surface and NEVER rest the panels on the polycarbonate face.

2.5 Installation Notes Refer to pages 5 to 10.

Each collector is essentially a weathered box that has to be secured and weathered to the roof structure.

Two penetrations are required into the loft space for ductwork connections at the back of each collector.
Each collector must be centred between two roof rafters to allow ductwork connections to be made at these points.

Four smaller penetrations, for each collector, are required for M8 Stud Bars to secure the panels in place.

2.6 Installation of Solar Air Collectors

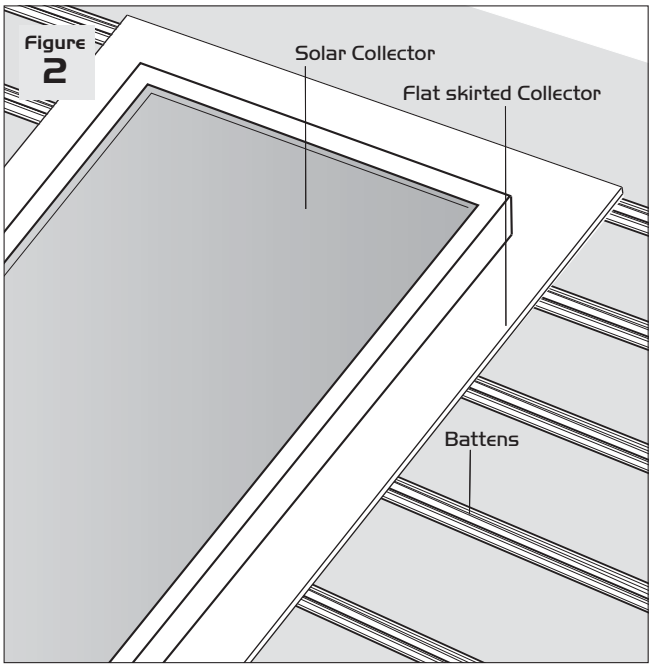
There are two options when installing the Solar Air Collectors on the roof.

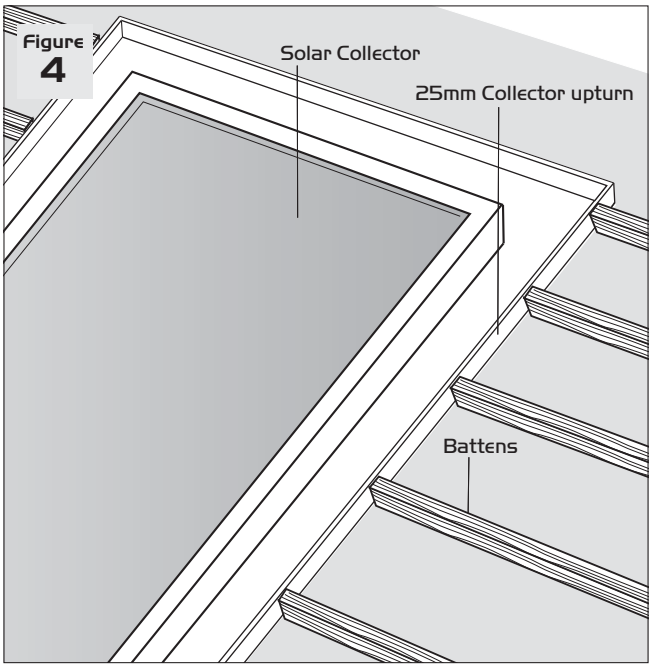
1. **Over the battens.**
2. **Over the rafters and/or sarkin board.**

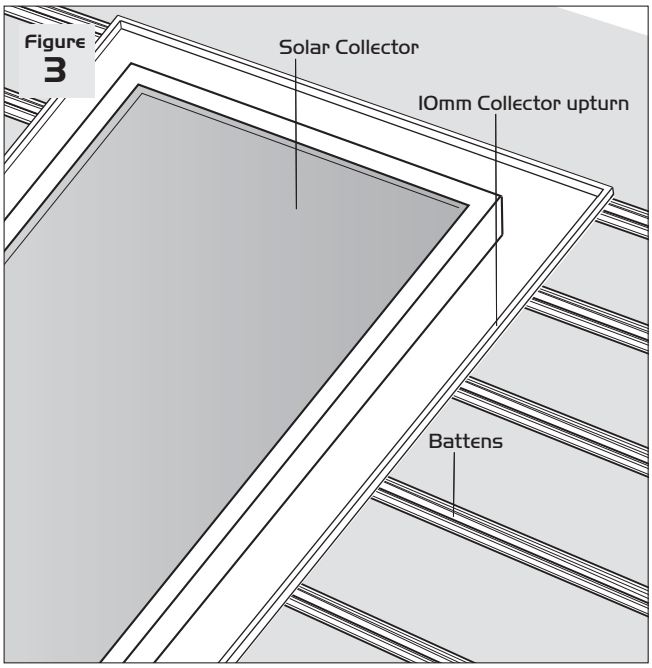
The choice of which option to use is with the installer and typically depends on aesthetics (how far the Solar Air Collectors protrude out of the roof), weather proofing and the type of tiles used.

The choice of installation must be made in advance as there are three types of collectors available.

1. **A flat skirted collector for use with thin slates or eternit type tiles for over the batten installations. (Figure 2), or over the tile installation.**
2. **A 10mm upstand collector used for over the batten installations. (Figure 3).**
3. **A 25mm upstand collector used for installing over the rafters and/or sarkin board. (Figure 4), or for high profile tiles, over the battens.**







2.0 Installation of the Solar Air Collectors

2.6.1 Installation of Collectors over the Battens

Measure along a line 2490mm from the top corner of the larger template to the bottom of the smaller template as as shown in figure 5..

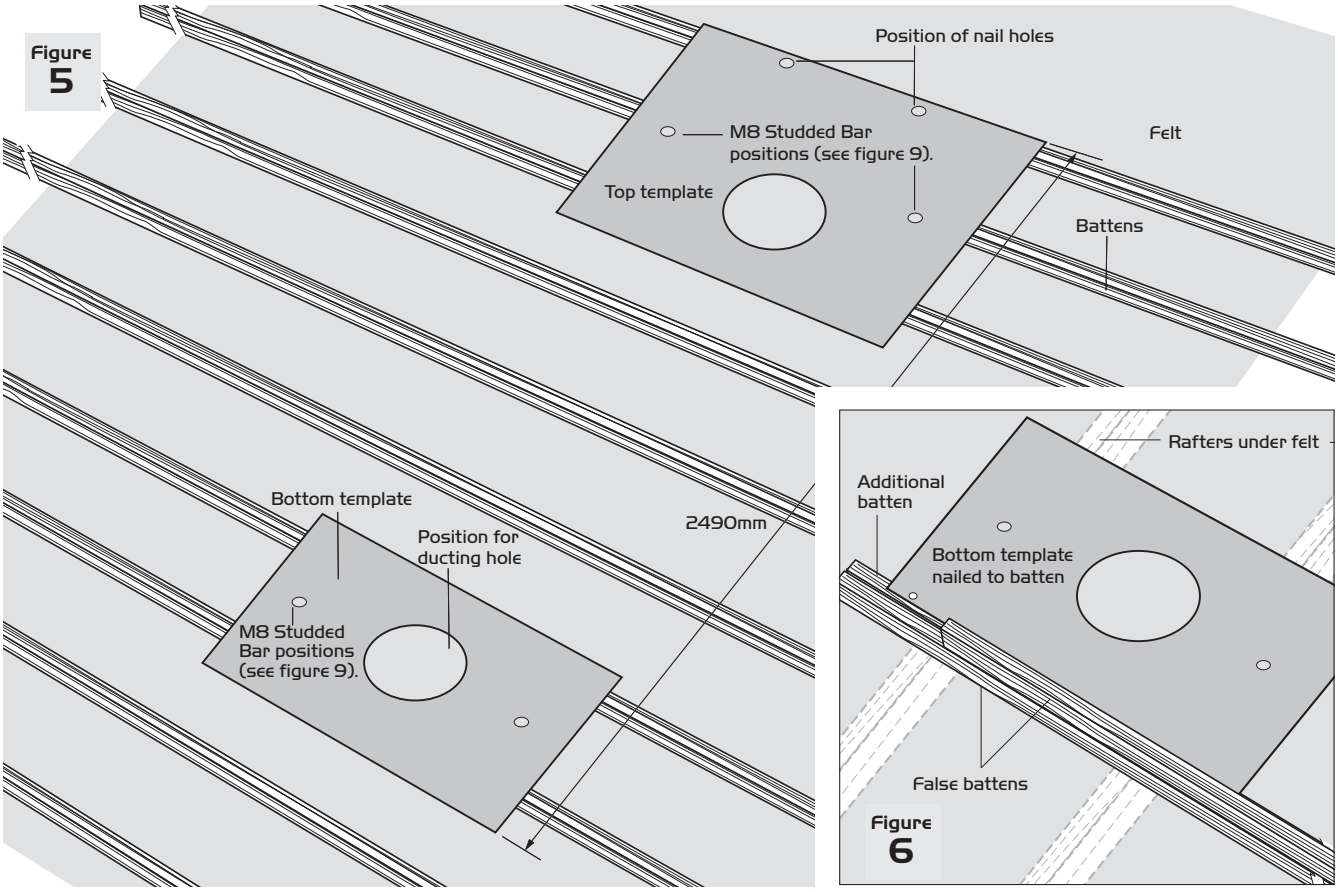


Figure 5

Figure 6

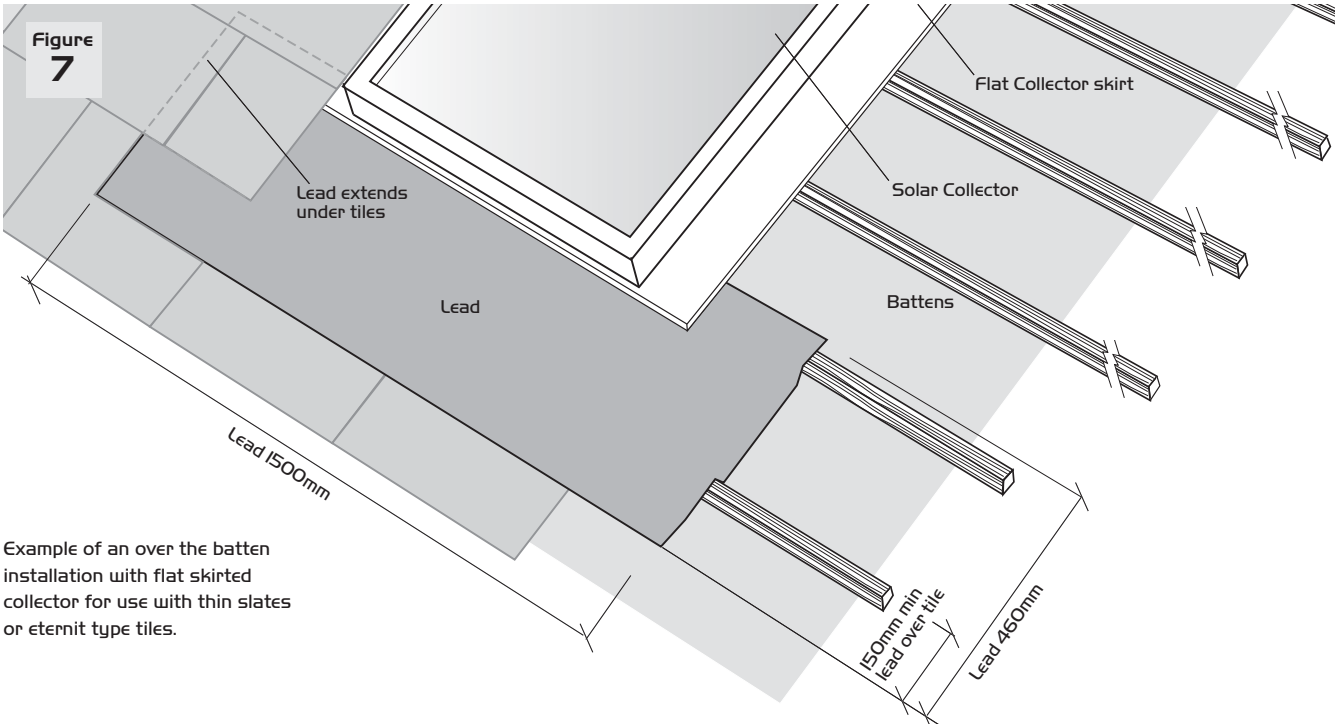


Figure 7

Example of an over the batten installation with flat skirted collector for use with thin slates or eternit type tiles.

2.0 Installation of the Solar Air Collectors

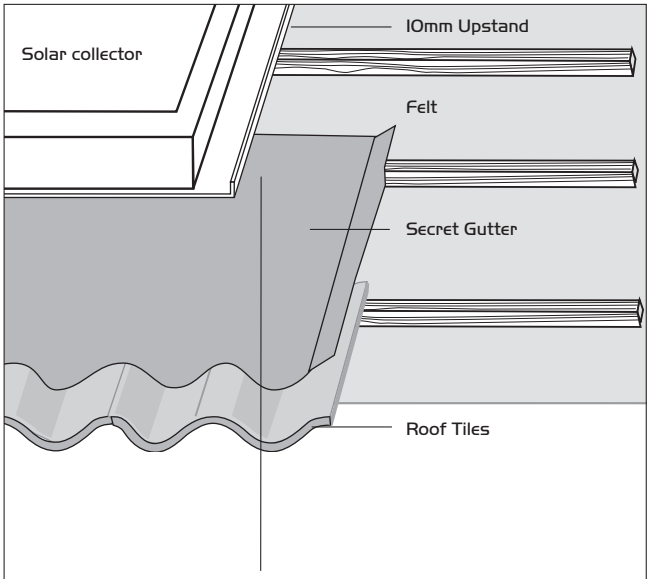
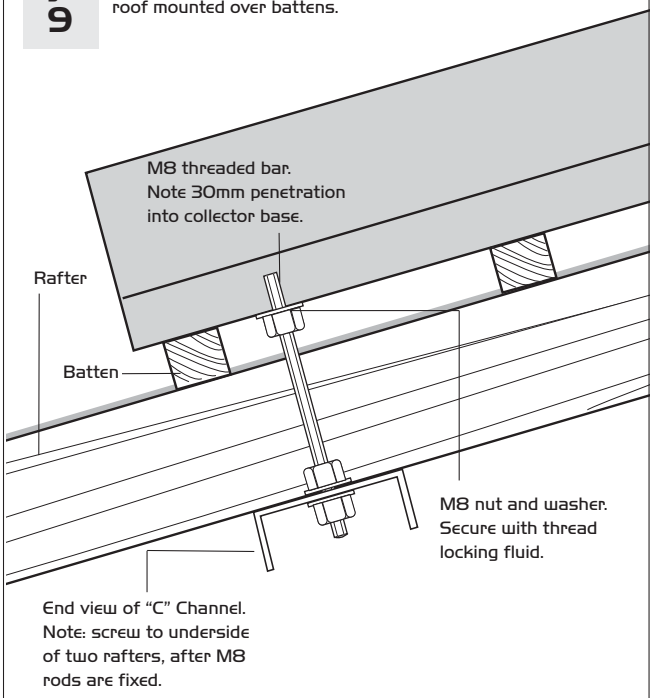
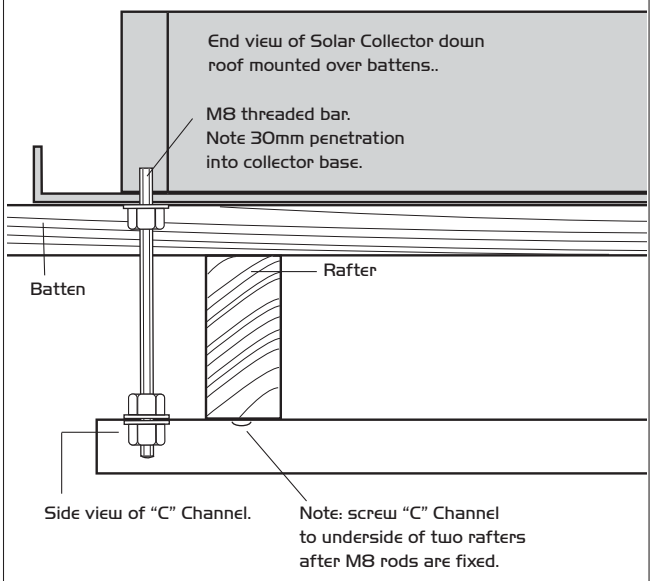


Figure 8 Lead nailed to batten under bottom of collector, leaving 300mm to form a secret gutter and 150mm to go over the tiles at the bottom of the collector.

Figure 9 Side view of Solar Collector across roof mounted over battens.





2.6.2 Installation of Collectors over the Rafters

Remove enough tiles/slates (on an existing roof) to clear an area large enough for each collector.

Figure 10

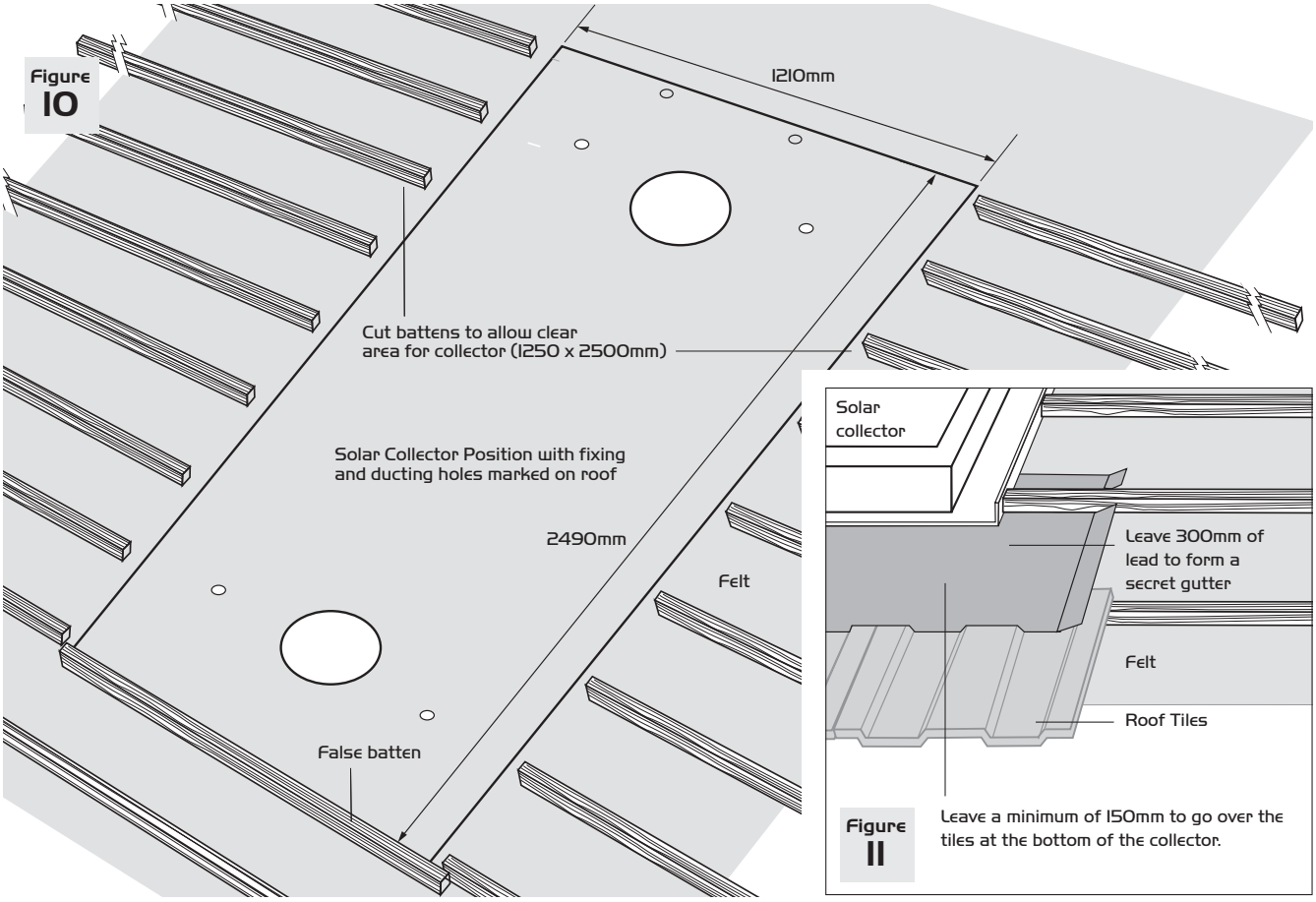
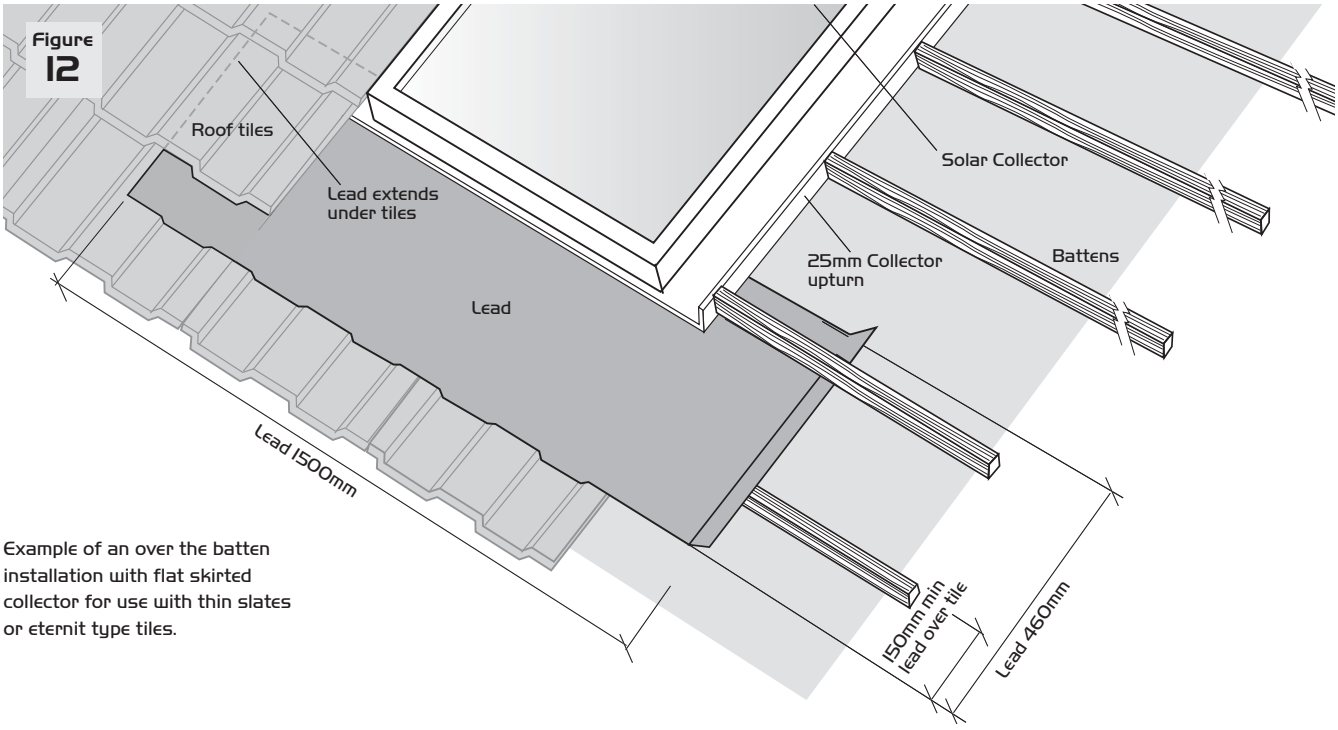


Figure 11

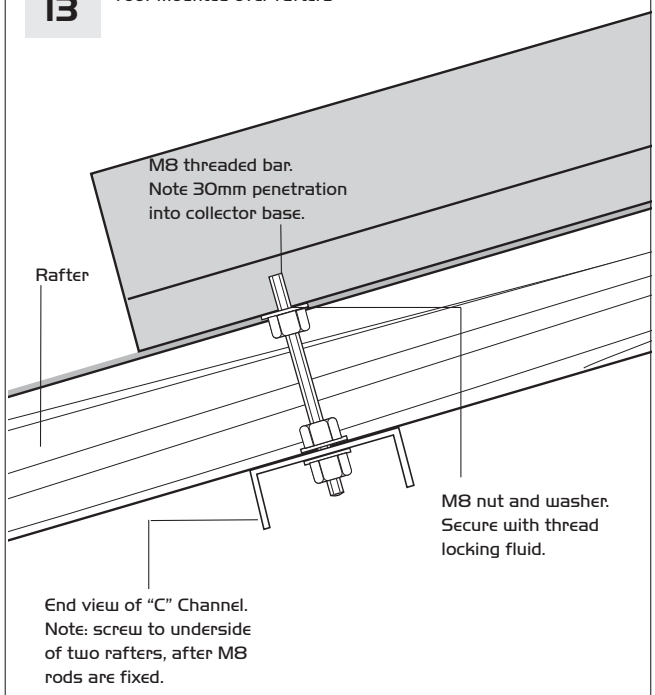
Figure 12

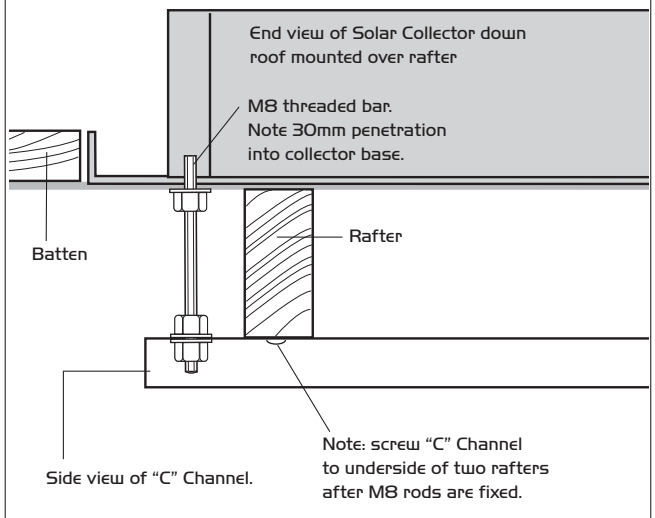


Example of an over the batten installation with flat skirted collector for use with thin slates or eternit type tiles.

2.0 Installation of the Solar Air Collectors

Figure 13 Side view of Solar Collector across roof mounted over rafters

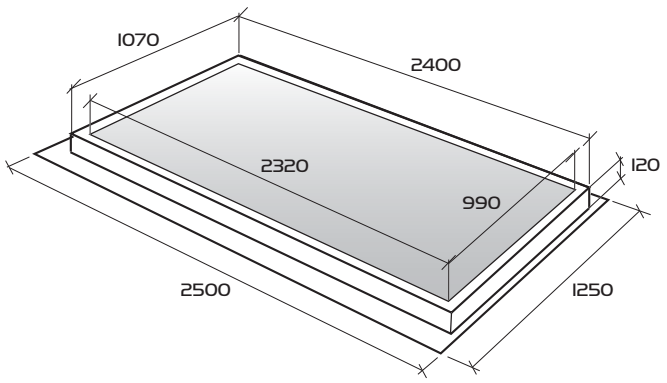




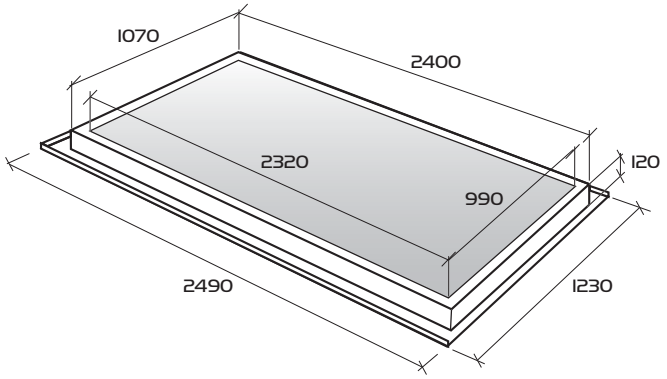
3.0 Dimensions of the Solar Air Collectors

Figure 14

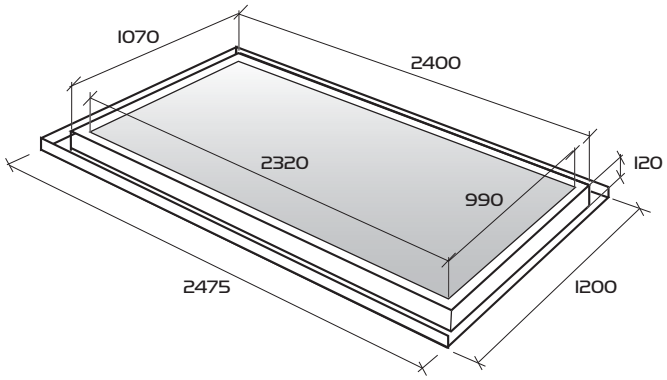
1. Flat skirted collector. Dimensions mm.



2. 10mm upstand collector.



3. 25mm upstand collector.



For installation of Sunwarm and Solar Hot Water Storage System refer to manual 671275 and manual 671379 for Sunwarm Air System.

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